

### **REMARKS/ARGUMENTS**

Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. (Hereinafter "Colgan1" US 6,483,498) in view of Boyd et al. (Hereinafter "Boyd" US 2002/0145593 A1). Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Boyd, as applied to claims 1 and 12, and further in view of Colgan et al. (Hereinafter "Colgan2" US 6,117,918 B1). Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Boyd, as applied to claims 1 and 12 above, and further in view of Hinata (U.S. 6,369,865 B2). Claims 13 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Mai (US 2004/0141096 A1) and further in view of Boyd. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Mai and Boyd, as applied to claim 13 above, and further in view of Colgan2. Claims 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Ikeda et al. (Hereinafter "Ikeda" US 6,504,584) and further in view of Boyd.

#### **1. Request for Continued Examination:**

The applicant respectfully requests continued examination of the above-indicated application as per 37 CFR 1.114.

#### **2. Rejection of claims 1 and 12 under 35 U.S.C. 103(a):**

Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Boyd for reasons of record, as recited on pages 4-6 of the above-indicated Office action.

#### **Response:**

Claim 1 has been amended to specifically describe the input-sensor-integrated liquid crystal display panel of the present application. The limitation of "the second substrate further having at least one protrusion jutting out the first substrate and a plurality of signal connecting contacts disposed on

the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals” added to claim 1 can be supported by paragraphs [0017],  
5 [0019], [0022] of the specification and the drawings FIG. 4-FIG. 5. No new material has been introduced. Acceptance of the amended claim 1 is respectfully requested.

10 According to the amended claim 1, an input-sensor-integrated liquid crystal display panel comprises:

a first substrate having at least one pixel controlling circuit;

a second substrate having a touch-detecting circuit and a color filter formed on the touch-detecting circuit, being positioned on top of the first substrate, the second substrate further having:

15 at least one protrusion jutting out the first substrate, the second substrate and the protrusion being integral; and

a plurality of signal connecting contacts disposed on the protrusion of the second substrate, the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals  
20 and a plurality of touch-detecting signals;

a liquid crystal layer filled between the space formed by the first substrate and the second substrate.

First, applicants politely reminder Examiner that the protrusion of the second  
25 substrate is especially included in the present application for such an input-sensor-integrated liquid crystal display panel and for installing signal connecting contacts to transmit pixel controlling signals and touch-detecting signals, as described in claim 1 and paragraph [0017] of the present application. As shown in claim 1, the signal connecting contacts of the present application are  
30 connected to the detecting circuit for transmitting pixel controlling signals and touch-detecting signals. As a result, the second substrate of the present application

further has the protrusion jutting out the first substrate, and has the signal connecting contacts disposed on the protrusion of the second substrate.

On the contrary, Colgan<sup>1</sup> or Boyd dose not teach or suggest such an upper  
5 substrate and such signal connecting contacts. The differences are described as following:

Although Examiner points that *Boyd's 2nd substrate "has" a protrusion with an edge that juts out of the 1st substrate* in page 2 of the above-indicated Office  
10 action, **the structure, functionality and purpose of the light guides 12, 15 and the coupler 44 in Boyd's disclosure are obviously different from the second substrate in the present application.** In Boyd's disclosure, the coupler 44 is used for **converting the light** supplied from the point source 42 to a line source. The supplied light then enters light input face 14 of the front light guide 12, and passes  
15 down into and then back up out of reflective light valve (in this case a reflective LCD) 36. Please refer to paragraph [0030] of Boyd's disclosure, *supplied (in other words, non-ambient) light from source 42 will enter coupler 44, where it typically is converted **from a point source or sources to a line source suitable for use in illuminated touch panel display 10.***

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On contrast, the claimed second substrate of the present application has a touch-detecting circuit and a color filter taught in the present application. As shown in paragraph [0019] of the present application, the detecting layer 316 and the color filter 308 is fabricated on the two sides of the top substrate 304 to make  
25 the top substrate 304 have functions of displaying images and detecting signals.

Since the front light guide 12 of Boyd's disclosure is obviously not the second substrate having a touch-detecting circuit and a color filter taught in the present application, applicants believe that **it is not obvious to a person having**  
30 **ordinary skill in the art to consider the front light guide 12 of Boyd's disclosure as the second substrate of the present application, and politely**

**apply a reconsideration of such an incorporation.**

On the other hand, as shown in the drawings of Colgan1's disclosure, ***the color filter plate 18*** taught by **Colgan1** does not *have a protrusion jutting out the*  
5 *TFT array plate 8*. Therefore, the signal connections are still problems for Colgan1, and there is obvious no protrusions of the upper substrate 18 to installation of signal connecting contacts in Colgan1's disclosure.

Subsequently, Examiner points that *Examiner accordingly construed on the*  
10 *broadest reasonable interpretation that the liquid crystal of Boyd is filled between the space, which included the gap, formed by the first and second substrates* in page 3 of the above-indicated Office action. However, applicants politely reminder that the air gap 35 of Boyd's disclosure is not the space formed by the first substrate and the second substrate and filled with a liquid crystal layer. That  
15 is because the air gap 35 is a light-path in Boyd's disclosure. As shown in paragraph [0037] of Boyd's disclosure, *the extracted light will pass through air gap 35*. Although Examiner considers the reflector 40 or the reflective LCD 36 as the 1st substrate, and considers the light guides 15, 12 as the 2nd substrate, the air gap 35 cannot be **filled** by liquid crystals.

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Once the air gap 35 is **filled** by liquid crystals, there are no electrodes to rotate the liquid crystals. The real electrodes to rotate liquid crystals are disposed in the reflective LCD 36, and cannot control the liquid crystals filling in the air gap 35. As a result, all light is obstructed by the liquid crystals filling in the air  
25 gap 35, and no images can be displayed. Therefore, the air gap 35 can merely be a light-path, and is **absolutely not filled** by liquid crystals.

In addition, Examiner points that *although applicant argues that the coupler is not "integral" with the substrate, the claim expressly recites that "the second*  
30 *substrate has (emphasis added) at least one edge jutting out the first substrate"* in page 2 of the above-indicated Office action. Therefore, the limitation of

*“integral”* is added to claim 1. Accordingly, the protrusion is directly one portion of the second substrate, and is especially designed for the claimed input-sensor-integrated liquid crystal display panel.

5 Applicants appreciate the thorough examination made by Examiner. However, applicants also politely submit that the claimed input-sensor-integrated liquid crystal display panel including the concrete structure and the signal connecting means is non-obvious in consideration of the recited references. The signal connecting contacts, which are disposed on the second substrate and connected to  
10 the detecting circuit, are especially included for such an input-sensor-integrated liquid crystal display panel to transmitting pixel controlling signals and touch-detecting signals on the second substrate. Furthermore, the second substrate including the touch-detecting circuit, the color filter, the signal connecting contacts and the protrusion are not taught by the recited references. Therefore,  
15 applicants politely apply a reconsideration of the claim rejections under 35 U.S.C. 103(a).

Neither Colgan1 nor Boyd teach such an input-sensor-integrated liquid crystal display panel, so the amended claim 1 should be allowable in  
20 consideration of 35 U.S.C. 103(a). Reconsideration of claim 1 is respectfully requested. Since claim 12 is dependent upon the amended claim 1, it should be allowable if the amended claim 1 is allowable. Reconsideration of claim 12 is respectfully requested.

25 **3. Rejection of claim 6 under 35 U.S.C. 103(a):**

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Boyd, and further in view of Colgan2 for reasons of record, as recited on pages 6-7 of the above-indicated Office action.

30 **Response:**

As the above mentioned, claim 1 has been amended to contain the limitation



of “the second substrate further having at least one protrusion jutting out the first substrate and a plurality of signal connecting contacts disposed on the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals”.

As the above mentioned, Colgan1 and Boyd do not teach that the claimed second substrate includes the claimed touch-detecting circuit, the claimed color filter, the claimed signal connecting contacts and the claimed protrusion.

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Further referring to Colgan2, Colgan2 does not teach that

(1) the top substrate 24 has at least one protrusion jutting out the bottom substrate 22; and

(2) the top substrate 24 has a plurality of signal connecting contacts disposed on the protrusion of the second substrate 24.

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Therefore, the combination of Colgan1's disclosure, Boyd's disclosure and Colgan2's disclosure does not teach all the limitations disclosed in the amended claim 1. Thus, the amended claim 1 should be allowable in consideration of 35 U.S.C. 103(a). Since claim 6 is dependent upon the amended claim 1, it should be allowable if the amended claim 1 is allowable. Reconsideration of claim 6 is respectfully requested.

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#### **4. Rejection of claims 8 and 9 under 35 U.S.C. 103(a):**

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Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Boyd, and further in view of Hinata for reasons of record, as recited on pages 7-8 of the above-indicated Office action.

#### **Response:**

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Claim 1 has been amended to contain the limitation of “the second substrate further having at least one protrusion jutting out the first substrate and a plurality

*of signal connecting contacts disposed on the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals”.*

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As the above mentioned, Colgan<sup>1</sup> and Boyd do not teach that the claimed second substrate includes the claimed touch-detecting circuit, the claimed color filter, the claimed signal connecting contacts and the claimed protrusion.

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Further referring to Hinata, Hinata does not teach that

(1) the top substrate 8a has at least one protrusion jutting out the bottom substrate 8b;

(2) the top substrate 24 has a plurality of signal connecting contacts disposed on the protrusion of the second substrate 24; and

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(3) the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of **touch-detecting signals**.

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Although the bottom substrate 8b has at least one protrusion jutting out the top substrate 8a in Hinata's disclosure, there is no protrusion of the top substrate 8a jutting out the bottom substrate 8b. The top substrate 8a and the bottom substrate 8b, which have different structures and different purposes, are completely different from each other, and should not be considered as the same. The protrusion of the second substrate is especially included in the present application for such an **input-sensor-integrated** liquid crystal display panel and for installing **signal connecting contacts** to transmit pixel controlling signals and **touch-detecting signals**.

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The structure of the second substrate, the position of the signal connecting contacts, and the functions of the signal connecting contacts are not merely a meaningless design, the claimed structure is especially designed for integrating a

touch-controlling circuit into liquid crystal display panel. However, all the recited references do not teach the claimed input-sensor-integrated liquid crystal display panel having the protruded second substrate for installing **signal connecting contacts** to transmit pixel controlling signals and **touch-detecting signals**.

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The combination of Colgan1's disclosure, Boyd's disclosure and Hinata's disclosure does not teach all the limitations disclosed in the amended claim 1. Thus, the amended claim 1 should be allowable in consideration of 35 U.S.C. 103(a). Since claims 8 and 9 are dependent upon the amended claim 1, they  
10 should be allowable if the amended claim 1 is allowable. Reconsideration of claims 8 and 9 is respectfully requested.

**5. Rejection of claims 13 and 15-19 under 35 U.S.C. 103(a):**

Claims 13 and 15-19 are rejected under 35 U.S.C. 103(a) as being  
15 unpatentable over Colgan1 in view of Mai and further in view of Boyd for reasons of record, as recited on pages 9-12 of the above-indicated Office action.

**Response:**

Claim 13 has been amended to specifically describe the  
20 input-sensor-integrated liquid crystal display panel of the present application. The limitation of "the second substrate further having at least one protrusion jutting out the first substrate and a plurality of signal connecting contacts disposed on the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit  
25 for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals" added to claim 13 can be supported by paragraphs [0017], [0019], [0022] of the specification and the drawings FIG. 4-FIG. 5. No new material has been introduced. Acceptance of the amended claim 13 is respectfully requested.

30

The protrusion of the second substrate is especially included in the present



application for such an **input-sensor-integrated** liquid crystal display panel and  
for installing **signal connecting contacts** to transmit pixel controlling signals and  
**touch-detecting signals**, as described in claim 13. On the contrary, Colgan1 or  
Boyd dose not teach or suggest such an upper substrate and such signal  
5 connecting contacts.

Since the front light guide 12 of Boyd's disclosure is obviously not the  
second substrate having a touch-detecting circuit and a color filter taught in the  
present application, applicants believe that it is not obvious to a person having  
10 ordinary skill in the art to consider the front light guide 12 of Boyd's disclosure as  
the second substrate of the present application.

On the other hand, as shown in the drawings of Colgan1's disclosure, **the**  
**color filter plate 18** taught by **Colgan1** does not *have a protrusion jutting out the*  
15 *TFT array plate 8*. Therefore, the signal connections are still problems for  
Colgan1, and there is obvious no protrusions of the upper substrate 18 to  
installation of signal connecting contacts in Colgan1's disclosure.

Subsequently, the air gap 35 can merely be a light-path, and is **absolutely**  
20 **not filled** by liquid crystals in Boyd's disclosure.

Further referring to Mai, Mai does not teach that

- (1) the upper substrate 132 has at least one protrusion jutting out the lower  
substrate 118;
- 25 (2) the top substrate 132 has a plurality of signal connecting contacts  
disposed on the protrusion of the second substrate 132; and
- (3) the signal connecting contacts connecting to the detecting circuit for  
transmitting a plurality of pixel controlling signals and a plurality of  
**touch-detecting signals**.

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The combination of Colgan1's disclosure, Mai's disclosure and Boyd's

disclosure does not disclose all the limitations of the structure in the amended claim 13. Therefore, the amended claim 13 should be allowable in consideration of 35 U.S.C. 103(a). Reconsideration of claim 13 is respectfully requested.

5        Since claims 15-19 are dependent upon the amended claim 13, they should be allowable if the amended claim 13 is allowable. Reconsideration of claims 15-19 is respectfully requested.

**6. Rejection of claim 14 under 35 U.S.C. 103(a):**

10        Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Mai and Boyd, and further in view of Colgan2 for reasons of record, as recited on page 12 of the above-indicated Office action.

**Response:**

15        As the above mentioned, claim 13 has been amended to contain the limitation of “the second substrate further having at least one protrusion jutting out the first substrate and a plurality of signal connecting contacts disposed on the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit  
20 for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals”.

As the above mentioned, Colgan1, Mai and Boyd do not teach that the claimed second substrate includes the claimed touch-detecting circuit, the claimed  
25 color filter, the claimed signal connecting contacts and the claimed protrusion.

Further referring to Colgan2, Colgan2 does not teach that

(1) the top substrate 24 has at least one protrusion jutting out the bottom substrate 22; and

30        (2) the top substrate 24 has a plurality of signal connecting contacts disposed on the protrusion of the second substrate 24.

Therefore, the combination of Colgan1's disclosure, Mai's disclosure, Boyd's disclosure and Colgan2's disclosure does not disclose all the limitations of the structure in the amended claim 13. Therefore, the amended claim 13 should be allowable in consideration of 35 U.S.C. 103(a). Since claim 14 is dependent upon the amended claim 13, it should be allowable if the amended claim 13 is allowable. Reconsideration of claim 14 is respectfully requested.

**7. Rejection of claims 20-27 under 35 U.S.C. 103(a):**

Claims 20-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colgan1 in view of Ikeda et al. and further in view of Boyd for reasons of record, as recited on pages 13-15 of the above-indicated Office action.

**Response:**

Claim 20 has been amended to specifically describe the input-sensor-integrated liquid crystal display panel of the present application. The limitation of "the second substrate further having at least one protrusion jutting out the first substrate and a plurality of signal connecting contacts disposed on the protrusion of the second substrate, the second substrate and the protrusion being integral, the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of touch-detecting signals" added to claim 20 can be supported by paragraphs [0017], [0019], [0022] of the specification and the drawings FIG. 4-FIG. 5. No new material has been introduced. Acceptance of the amended claim 20 is respectfully requested.

The protrusion of the second substrate is especially included in the present application for such an **input-sensor-integrated** liquid crystal display panel and for installing **signal connecting contacts** to transmit pixel controlling signals and **touch-detecting signals**, as described in claim 20. On the contrary, Colgan1 or Boyd dose not teach or suggest such an upper substrate and such signal

connecting contacts.

5 Since the front light guide 12 of Boyd's disclosure is obviously not the second substrate having a touch-detecting circuit and a color filter taught in the present application, applicants believe that it is not obvious to a person having ordinary skill in the art to consider the front light guide 12 of Boyd's disclosure as the second substrate of the present application.

10 On the other hand, as shown in the drawings of Colgan1's disclosure, ***the color filter plate 18*** taught by **Colgan1** does not *have a protrusion jutting out the TFT array plate 8*. Therefore, the signal connections are still problems for Colgan1, and there is obvious no protrusions of the upper substrate 18 to installation of signal connecting contacts in Colgan1's disclosure.

15 Subsequently, the air gap 35 can merely be a light-path, and is **absolutely not filled** by liquid crystals in Boyd's disclosure.

Further referring to Ikeda, Ikeda does not teach that

20 (1) the upper substrate 4 has at least one protrusion jutting out the lower substrate 3;

(2) the top substrate 4 has a plurality of signal connecting contacts disposed on the protrusion of the second substrate 4; and

25 (3) the signal connecting contacts connecting to the detecting circuit for transmitting a plurality of pixel controlling signals and a plurality of **touch-detecting signals**.

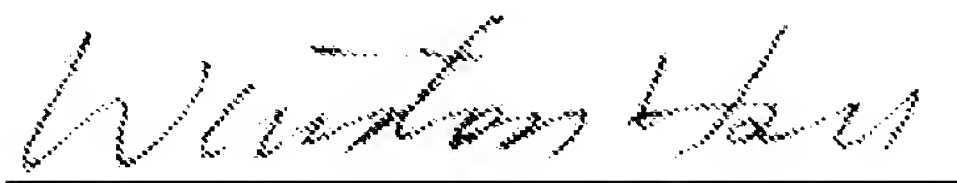
The combination of Colgan1's disclosure, Ikeda's disclosure and Boyd's disclosure does not disclose all the limitations of the structure in the amended claim 13. Therefore, the amended claim 20 should be allowable in consideration  
30 of 35 U.S.C. 103(a). Reconsideration of claim 20 is respectfully requested.

Since claims 21-27 are dependent upon the amended claim 20, they should be allowable if the amended claim 20 is allowable. Reconsideration of claims 21-27 is respectfully requested.

5

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

10 Sincerely yours,



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20 time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)